

Figure 1. Foot and pectoral girdle of *Telmatobius grandisonae*, new species, (BM 1962.629). Line equals 5 mm.

Measurement of holotype in mm.—SVL 32.9; shank 14.0; head width 10.8; head length 10.6; upper eyelid width 3.2; interorbital distance 2.1; eye length 3.7; eye-nostril distance 2.5.

The paratype is an immature female, 25.7 mm SVL. The oviducts are weakly convoluted and the ovaries contain many minute nonpigmented eggs. The skin of the dorsum, head, and flanks is shagreened rather than covered with large warts.

Remarks.—The skin of the head of the holotype was cut and reflected to expose the skull bones. The frontoparietals are complete and medially extend anteriorly between the posteromedial edges of the nasal bones. The nasal bones are relatively large and narrowly separated medially. The maxillary arch is incomplete in that the quadratojugal is absent. The squamosal is unmodified with moderate length otic and zygomatic rami.

The pectoral girdle (Fig. 1) has a large omosternum with a dilated manubrial portion. The epicoracoidal cartilages are calcified in the area of overlap but the girdle is strictly arciferal. The clavicles are massive and weakly curved. The sternum is broad, non-bifurcate, posteriorly weakly expanded, and has a rather large calcified center.

Comparisons.—*Telmatobius grandisonae* differs from all other extra-Andean species except *T. somuncurensis* in having a dilated manubrial portion of the omosternum. Like all except *T. somuncurensis*, *T. grandisonae* does not have a bifurcated sternum. Both *T. grandisonae* and *T. somuncurensis* have cal-

cified elements in the sternum but the element is single in *T. grandisonae* and paired in *T. somuncurensis*. The absence of an exposed frontoparietal fontanelle distinguishes *T. grandisonae* from the other species of the group (in the six Argentine species the fontanelle varies from small in *T. nitoi* and *T. somuncurensis* to extensive in *T. patagonicus* and *T. praebasalticus*). The toes of *T. nitoi*, *T. patagonicus*, and *T. praebasalticus* are all more fully webbed than in *T. grandisonae* which in turn has greater webbing than *T. reverberii*, *T. solitarius*, and *T. somuncurensis*. Additionally, *T. somuncurensis* has an ear (unlike all other species of the group) and *T. reverberii* and *T. solitarius* are pale frogs with large dorsal spots.

Ecology.—Both specimens were taken under stones in moorlands. The habitat was described by Grandison (Bull. British Mus. Nat. Hist., 8:120–121, 1961) from notes made by the zoologist on the expedition, Martin Holdgate. On the basis of these limited data, *T. grandisonae* must be viewed as at least a semi-terrestrial species not unlike *T. solitarius*, but quite unlike *T. patagonicus*.

Grandison (*supra cit.*) reported *Eupsophus copingeri* (= *E. monticola*, fide Lynch, *Herpetologica*, 24:255–57, 1968) from Puerto Eden and although not reported, one might expect to find *Pleurodema bufonina*, *Batrachyla leptopus*, and *Bufo variegatus* at Puerto Eden as well (Cei, *Batracios de Chile*, Santiago, 1962). *Telmatobius grandisonae* differs from all but *E. monticola* in lacking an ear. *Pleurodema bufonina* has prominent inguinal glands and like *B. leptopus* lacks webbing and tarsal folds. *Batrachyla leptopus* has a long snout unlike *T. grandisonae*. *Bufo variegatus* lacks teeth and has parotoid glands and a distinct color pattern. *Eupsophus monticola* has pectoral nuptial asperites and enlarged forearms (in breeding males), complete maxillary arch, notched sternum, and less toe webbing (see illustration in Grandison, 1961).

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A NEW SPECIES OF *NEOTROMBICULA* (ACARINA: TROMBICULIDAE) FROM SOUTHERN CALIFORNIA

In a recent study, Spoecker (1967) reported the ectoparasites of a Mojave Desert population of side-blotched lizards *Uta stansburiana*, in Kern County, California. Examination of those chiggers listed as *Neotrombicula* species revealed that they represented a new species closely similar to described species belonging to the *microti* group.

The following description is based on the holotype and paratypes (noted in parentheses), with all

measurements in microns. The types are in the chigger research collection at California State University, Long Beach, and paratypes will be distributed to appropriate institutions and individuals.

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Neotrombicula superciliaris, new species

Figure 1

Types.—Holotype and 21 paratypes from 13.7 km NNW Randsburg, el. 1100–1220 m, El Paso Mountains, Kern Co. California, all from the eyelids of 16 *Uta stansburiana* taken by Peter D. Spoecker: Holotype and one paratype (PDS 17) taken 23.II.1964, and 20 paratypes taken from 7.XII.1963 to 19.IV.1964.

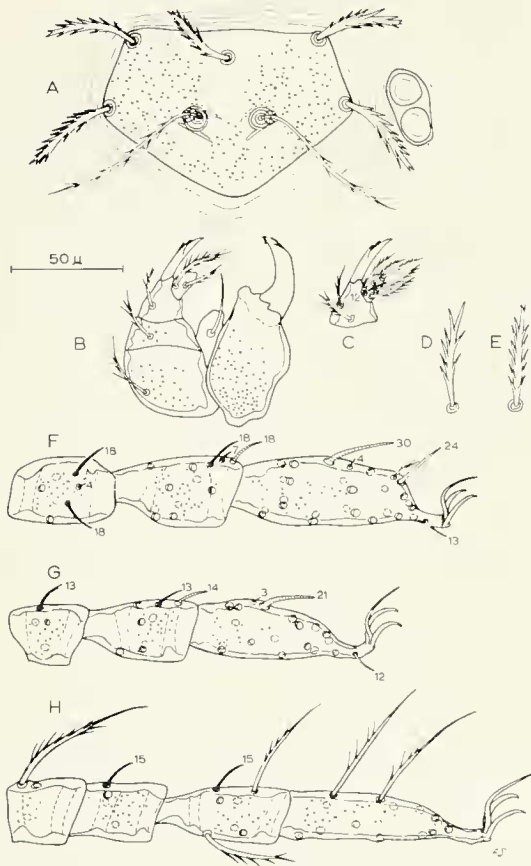


Figure 1. Larva of *Neotrombicula superciliaris*: A. Scutum and eyes; B. Gnathosoma, dorsal view; C. Palpal tibia and tarsus, ventral view; D. Posterior dorsal seta; E. Mid-dorsal body seta; F. Leg I; genu, tibia, and tarsus, with bases of branched setae, nude setae and measurements; G. Leg II; as above; H. Leg III; telofemur and as above.

Diagnosis.—Palpal setal formula B/B/BBB + 7B; galeala usually nude; tibia I with 9B; parasubterminala I branched; leg III with branched mastifemorala, mastitibiala, and 2 mastitarsalae; sensilla branched.

Description of holotype (with differences among paratypes in parentheses).—Body red, 396 × 549; eyes red, 2/2 on ocular plate. Dorsal setal formula 2–11–11 + 30, total 54; measurements of humeral seta 40, seta of first posthumeral row 34, posterior dorsal seta 38. Ventral setae 2–2 + 40, total 44; measurements of first sternal seta 43, second sternal seta 39, preanal seta 26, and postanal seta 37.

Scutum: Moderately punctate, SB slightly posterior to PL bases: sensilla flagelliform, branched along distal 4, 5th; PL ≥ AL = AM, similar in appearance to dorsal setae. Scutal measurements of holotype (and mean and extremes of 21 paratypes, unless otherwise noted): AW 67 (70, 66–72); PW 87 (88, 85–92); SB 22 (24, 21–27), ASB 32 (33, 31–35); PSB 30 (31, 27–34); AP 26 (28, 25–31); AM 34 (32, 27–35, 19); AL 33 (33, 30–35); PL 36 (35, 33–37, 19); S 60 (61.8, 58–68, 12).

Gnathosoma: Palpal setal formula B/B/BB(N in 2)B + 7B; galeala N + IB (of 38 specimens examined, 25 (65.8%) with both N, 10 (26.32%) with N + B, 3 (7.9%) with both B); cheliceral bases and palpal coxae moderately punctate.

Legs (with B and specialized setae as follows): Leg I: coxa I; trochanter I; basifemur I, telofemur 5; genu 4, 2 genualae and microgenuala; tibia 9, 2 tibialae (distal striated), microtibiala; tarsus 9 proximal, 8 medial, 6 distal (total 23), tarsala 27 (26, 25–27), anterad microtarsala, subterminala, B parasubterminala, and pretarsala. Leg II: cx I; tr I; bf 2; tf 4; genu 3, genuala; tibia 6, 2 tibialae (distal striated); tarsus 6 proximal, 4 medial, 6 distal (total 16), tarsala 19 (20, 19–22), posterad microtarsala, and pretarsala. Leg III: cx I; tr I; bf 2; tf 2 + B mastifemorala 42; genu 3, genuala; tibia 5 + B mastitibiala 44, tibiala; tarsus 3 proximal + B mastitarsala 50, 4 medial + B mastitarsala 50, 6 distal (total 15). Coxae conspicuously punctate; other leg segments with few puncta: All terminating in two claws and clawlike empodium, without onychotriches. Leg measurements of holotype (mean and extremes of 21 paratypes): I 271 (288, 225–314); II 248 (260, 233–284); III 259 (292, 265–365); total 778 (839, 772–899).

Taxonomic remarks.—In discussing the importance of leg setal formulae in leeuwenhoekine and trombiculine larvae, Vercammen-Grandjean et al. (1973) noted that tibia I usually has 8 branched setae. However, in members of the microti group of *Neotrombicula*, tibia I has 9 branched setae. Despite the lack of a palpotarsal subterminala, and branches on the usually nude mastisetae III, *N. superciliaris* with 9B on tibia I, clearly belongs to the microti group. The microti group (Brennan and Wharton, 1950) also is represented in California by *N. brennani*, *N. californica*, *N. cavicola*, *N. dinehartae*, *N. harperi*,

N. jewetti, *N. microti*, and *N. pseudoautumnalis* (Brennan and Jones, 1959 and Gould, 1956).

Loomis and Stephens (1973) reported chiggers from the upper eyelids of *Uta stansburiana* and *Sceloporus occidentalis* from Joshua Tree National Monument, California, and tentatively identified them as *Neotrombicula harperi* (Ewing), which is probably the same species listed below as *N. californica*. Among 16 larvae from San Bernardino County, tentatively identified as *N. californica* (Ewing), all had 2-4 basal branches on mastifemorala III, and one specimen had two branches on a distal mastitarsala III.

The similarity of *Hyponeocula sauricola* Tanigoshi and Loomis (1974) to *N. superciliaris* seems to be superficial as the former has only 8 branched setae on tibia I (rather than 9), 3-4 branched setae on coxae III (instead of one), and none of the branched setae on leg III resemble the branched mastisetae of *N. superciliaris*.

Specimens examined (78).—*Neotrombicula superciliaris* (55): CALIFORNIA Kern Co: 13.7 km NNW Randsburg, 1100-1220 m, El Paso Mountains, 7.XII.1963-19.IV.1964, 16 *Uta stansburiana* (22 types + 29). Inyo Co: Death Valley National Monument, 13 km SE Emigrant Jet., 1463 m, 23.III.1975, *U. stansburiana* (4).

Neotrombicula californica (23): CALIFORNIA Los Angeles Co: Acton, 823 m, 12.IV.1933. *Thomomys bottae* (7 types). San Bernardino Co: 6.4 km SE Seven Oaks (= Poopout Hill), 23.III.1969, *Sceloporus graciosus* (3); 3 km SW Seven Oaks (= Cedar Falls Camp), 23.V.1964, *S. graciosus* (3); 5 km NW Lake Arrowhead, 1463 m, 21.IV.1964, *Sceloporus occidentalis* (4); 2 km N Helendale, 765 m, 20.VII.1961, *S. occidentalis* (6).

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- A CASE OF ACTIVE BROOD DEFENSE
IN THE THORNBUG,
UMBONIA CRASSICORNIS
(HOMOPTERA: MEMBRACIDAE)
- Although many examples of subsocial behavior have been recorded for various species of Hemiptera and Homoptera (Odhiambo, *New Scientist*, 8:449-451, 1960; Wilson, *The insect societies*, pp. 120-122, 1971), the majority of cases are limited to passive guarding of the eggs and early nymphs by an adult. Very occasionally, an adult, usually the mother, will remain close by the nymphs for a considerable portion of their development and may "shepherd" them during short excursions. Bequaert (*Bull. Brooklyn Ent. Soc.*, 30:177-191) found that males of the African reduviid bug *Rhinocoris albopunctatus* not only stood guard over the egg masses and young nymphs, but would also impale ants with their beaks and remove them from the egg masses.
- A single detailed example of passive brood defense has been recorded for the Homoptera by Beamer (*Ent. News*, 41:330-331). Females of the membracid bug *Platycotis vittata* were observed sitting between the early nymphs and the main stem of the food plant. These females would not fly away when touched, but were not observed to actively defend the brood.
- During the last week of July, 1975, I observed three separate instances of females of the thornbug in Coral Gables, Dade Co, Florida, standing guard over clusters